

CONTRACTOR SHALL CONTACT
MSS UTILITY @ 1-800-552-7001
FOR LOCATION OF ALL UTILITIES AT
LEAST 72 HOURS PRIOR
TO BEGINNING CONSTRUCTION.

Storm—Drainage

From	TO	Structure Type	Top Elev.	Throat Length (ft)	PIPE Size (inches)	Inv. In	Inv. Out	PIPE Length (ft)
CO-A1	MH-A1	N/A	2124.30	N/A	18	2120.99	2117.99	210
DI-A1	MH-A1	VDOT STD DI 1	2123.35	2.50	18	2118.89	2117.99	90
MH-A1	CB-A1	VDOT STD MH 2	2124.25	N/A	18	2117.79	2116.92	87
CB-A1	CB-A2	VDI STD DI 3 A	2123.95	2.50	18	2116.38	2114.89	169
CB-A2	CB-A3	VDOT STD DI 3 A	2123.95	2.50	24	2114.49	2111.22	327
CB-A3	CB-A4	VDOT STD DI 3 B	2118.35	4.00	24	2111.02	2109.23	179
CB-A4	MH-A2	VDOT STD DI 3	2114.81	2.50	30	2108.68	2106.04	132
MH-A2	DI-1	VDOT STD MH 2	2112.25	N/A	30	2105.84	2104.96	44
DI-A2	OF-A1	VDOT STD DI 12	2110.69	4.00	30	2104.76	2104.19	57
EW-B1	CB-B1	N/A	N/A	N/A	15	2119.58	2119.26	32
CB-B1	CB-B2	VDOT STD DI - 3A	2123.47	2.50	18	2119.00	2116.68	232
CB-B2	MH-B1	VDOT STD DI - 3C	2121.82	5.00	18	2116.48	2115.08	140
CO-B1	MH-B1	N/A	2124.00		18	2119.79	2115.88	261
MH-B1	CB-B3	VDOT STD MH-2	2123.10	N/A	24	2114.54	2113.78	76
CB-B3	CB-B4	VDOT STD DI-3A	2121.79	2.50	24	2113.58	2111.45	213
CB-B4	MH-B2	VDOT STD DI-3A	2123.87	2.50	30	2110.90	2110.18	72
EW-B2	MH-B2	VDOT STD EW-2	N/A	N/A	24	2111.39	2110.73	22
MH-B2	CB-B5	VDOT STD MH-2	2124.05	N/A	36	2109.68	2107.32	236
EW-B3	CB-B5	VDOT STD EW-2	N/A	N/A	24	2110.00	2108.40	32
CB-B5	CB-B6	VDOT STD DI-3A	2119.05	2.50	36	2107.12	2104.97	215
CB-B6	DI-B1	VDOT STD DI-3C	2113.65	4.00	42	2104.42	2103.38	104
DI-B1	OF-B1	VDOT STD DI-12	2112.06	4.00	42	2103.18	2102.87	31
DI-C1	OF-C1	VDOT STD DI-12	2111.41	4.00	24	2106.65	2105.81	42
DI-C2	OF-C2	VDOT STD DI-12	2111.08	4.00	24	2106.33	2105.49	

UNLESS SPECIFICALLY INDICATED OTHERWISE IN THE DRAWINGS AND/OR SPECIFICATIONS, THE LIMITS OF THIS SUBSURFACE PREPARATION ARE CONSIDERED TO BE THAT PORTION OF THE SITE DIRECTLY BENEATH AND 10 FEET BEYOND THE BUILDING AND APPURTENANCES.

APPURTENANCES ARE THOSE ITEMS ATTACHED TO THE BUILDING PROPER (REFER TO DRAWING SHEET SP 1.) TYPICALLY INCLUDING, BUT NOT LIMITED TO, THE BUILDING SIDEWALKS, GARDEN CENTER, PORCHES, RAMP, STOPS, TRUCK WELLS/DOCKS, CONCRETE APRONS AT THE AUTOMOBILE CENTER, DRIVEWAYS, PAVED ETC., THE SUBBASE AND THE VAPOR BARRIER, WHERE REQUIRED, DO NOT EXTEND BEYOND THE LIMITS OF THE ACTUAL BUILDING AND THE APPURTENANCES.

ESTABLISH THE FINAL SUBGRADE ELEVATION AT 10 INCHES BELOW FINISHED FLOOR ELEVATION TO ALLOW FOR A 4 INCH SLAB, OR AT 11.5 INCHES BELOW THE FINISHED FLOOR ELEVATION TO ALLOW FOR A 5.5 INCH SLAB TO ALLOW FOR THE SLAB THICKNESS AND A 6 INCH SUBBASE. THE SUBBASE SHALL CONSIST OF 4 INCHES OF COARSE AGGREGATE MEETING THE GRADATION REQUIREMENTS OF VDOT NO. 218 CRUSHED STONE WITH 100% PASSING THE NO. 11/2-SIEVE, 15% TO 55% PASSING IRE NO. 4 SIEVE AND 2% TO 8% PASSING THE NO. 200 SIEVE COVERED WITH 2 INCHES OF FINE AGGREGATE MEETING THE GRADATION REQUIREMENTS OF VDOT NO. 10 CRUSHED STONE WITH 6% TO 12% PASSING THE NO. 200 SIEVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ACCURATE MEASUREMENTS FOR ALL CUT AND FILL DEPTHS REQUIRED.

EXISTING FOUNDATIONS, SLABS, PAVEMENTS, AND BELOW-GRADE STRUCTURES SHALL BE REMOVED FROM THE BUILDING AREA. REMOVE SURFACE VEGETATIONS, TOPSOIL, ROOT SYSTEMS ORGANIC MATERIAL EXISTING FILL AND SOFT OR OTHERWISE UNSUITABLE MATERIAL FROM THE BUILDING AREA. PROOFROLL EXPOSED SUBGRADE. REMOVE AND REPLACE UNSUITABLE AREAS WITH SUITABLE MATERIAL. SUBGRADE MATERIAL SHALL BE FREE OF ORGANIC AND OTHER DELETERIOUS MATERIALS AND SHALL MEET THE FOLLOWING REQUIREMENTS ON SITE SOILS MAY BE USED IF THEY MEET THE FOLLOWING REQUIREMENTS, CONTROLLED STRUCTURAL FILL SHOULD BE FREE OF BOULDERS, ORGANIC MATTER, DEBRIS OR OTHER DELETERIOUS MATERIAL AND SHOULD HAVE A MAXIMUM PARTICLE SIZE NO GREATER THAN 3 INCHES SIGNIFICANT MOISTURE MAY BE REQUIRED IF ON-SITE SOILS ARE USED AS STRUCTURAL FILL.

LOCATION WITH RESPECT TO FINAL GRADE
BUILDING AREA, BELOW UPPER 4 FEET
BUILDING AREA, UPPER 4 FEET
P.1
<45 MAX.>
<45 MAX.>
L.L.
<75 MAX.>
<75 MAX.>

SUBGRADE MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8 INCHES IN THICKNESS AND COMPACTED TO AT LEAST 98 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698) AT A MOISTURE CONTENT WITHIN 2 PERCENT BELOW TO 2 PERCENT ABOVE THE OPTIMUM.

THE FOUNDATION SYSTEM SHALL BE ISOLATED SPREAD FOOTINGS AT COLUMNS AND CONTINUOUS SPREAD FOOTINGS AT WALLS.

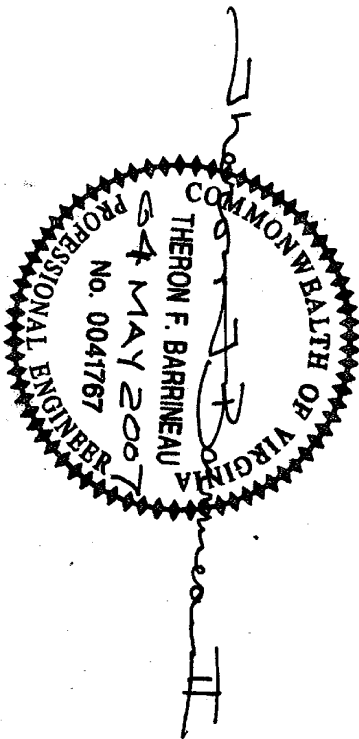
THIS FOUNDATION SUBSURFACE PREPARATION DOES NOT CONSTITUTE A COMPLETE SITE WORK SPECIFICATION. IN CASE OF CONFLICT, INFORMATION COVERED IN THIS PREPARATION SHALL TAKE PRECEDENCE OVER THE RETAIL SPECIFICATIONS. REFER TO THE SPECIFICATIONS FOR SPECIFIC INFORMATION NOT COVERED IN THIS PREPARATION.

SITE GRADING &
STORM DRAINAGE NOTES

- CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT-OF-WAY.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
- ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER UNLESS OTHERWISE NOTED (SEE NOTE BELOW).
- PRECAST STRUCTURES MAY BE USED AT CONTRACTORS OPTION.
- STORM PIPE SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED:

TYPE 1: RCP, CLASS III PER ASTM C-76, WITH FLEXIBLE PLASTIC BITUMEN GASKETS AT JOINTS.
TYPE 2: SPIRAL RIB METAL PIPE TYPE 1R, GALVANIZED, ALUMINIZED, OR BITUMINOUS COATED AS SPECIFIED ON CONSTRUCTION DRAWINGS. ONLY PERMITTED WHEN SPECIFICALLY INDICATED ON CONSTRUCTION DRAWINGS. PIPE ENDS SHALL BE RE-CORRUGATED AND INSTALLED WITH SEMI-CORRUGATED HUGGER-TYPE BANDS AND "O" RING GASKETS IN ACCORDANCE WITH PIPE MANUFACTURER'S INSTALLATION REQUIREMENTS. SPIRAL RIB METAL PIPE MUST COMPLY WITH ASTM A 760 TYPE 1R, ACCEPTABLE MANUFACTURER: CONTECH, INC. "ULTRA FLO OR ULTRA FLO II", CALDWELL CULVERT CO. "SMOOTH RIB", OR APPROVED EQUAL.
TYPE 3: HIGH DENSITY POLYETHYLENE PIPE (HDPE) SMOOTH INTERIOR. ASHTO DESIGNATION M252 AND M294. MAXIMUM DIAMETER OF 48 INCHES. ONLY PERMITTED WHEN SPECIFICALLY INDICATED ON CONSTRUCTION DRAWINGS. PIPE SHALL BE INSTALLED IN ACCORDANCE WITH PIPE MANUFACTURER'S INSTALLATION GUIDELINES FOR CULVERT STORM DRAINAGE APPLICATIONS.

1. PIPE JOINTS AND FITTINGS SHALL CONFORM TO ASHTO M252 AND M294.
2. ACCEPTABLE MANUFACTURERS: ADVANCED DRAINAGE SYSTEMS, INC. "ADSN-12", HANCOR, INC. "HI-Q", OR APPROVED EQUAL.
- EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
- EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
- PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.
- IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
- ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERIGHT.
- ALL STORM SEWER MANHOLES, GRATES, AND LIDS IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING FRAME & COVERS. MANHOLE LIDS IN UNPAVED AREAS SHALL BE 0.1' ABOVE FINISH GRADE. LIDS SHALL BE LABELED "STORM SEWER".
- THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL NOTES. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
- CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
- TOPOGRAPHIC INFORMATION TAKEN FROM A TOPOGRAPHIC SURVEY BY ANDERSON & ASSOCIATES, INC., IF CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, HE SHALL HAVE MADE, AT HIS EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR AND SUBMIT IT TO THE OWNER FOR REVIEW.
- ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC (VDOT EC-2 OR EC-3 MATTING) TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS UNTIL AN ACCEPTABLE STAND OF GRASS IS OBTAINED.
- CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
- ALL STORM STRUCTURES SHALL HAVE A SMOOTH UNIFORM POURED MORTAR INVERT FROM INVERT IN TO INVERT OUT WITH THE EXCEPTION OF MANHOLES DESIGNED WITH SUMPS (SEE GRADING & DRAINAGE PLAN)
- ALL WALKWAYS MUST MEET ADA REQUIREMENTS OF MAXIMUM 5% LONGITUDINAL SLOPE AND 2% CROSS SLOPE PER VDOT DETAIL IS-1.



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DATE : 04 MAY 07
DESIGNED: TTB
DRAWN : LTB
CHECKED :
QA/QC :
REV. # COMMENTS DATE

FIRST & MAIN BLACKSBURG
PHASE II
BLACKSBURG, VIRGINIA

GRADING & STORM DRAINAGE NOTES

TOWN ENGINEER	DATE
TOWN PLANNER	DATE
DOCUMENT NO. 22559-120	SHEET C 2.01